

ABSTRACT OF THE DISCLOSURE

In accordance with the present invention, there are provided methods for the manufacture of aluminum alloy plates having reduced levels of residual stress as well as plates and products employing such plates. Processes of the present invention involve providing a solution heat-treated and quenched aluminum alloy plate with a thickness of at least 5 inches, and stress relieving the plate by performing at least one compressing step at a total rate of 0.5 to 5 % permanent set along the longest or second longest edge of the plate. In the method, the dimension of the plate where the compression step is performed is along the longest or second longest edge of the plate, which is preferably no less than twice and no more than eight times the thickness of the plate. In further accordance with the present invention, there are provided stress-relieved alloys and plates that are provided with superior W_{tot} properties as well as reduced residual stress and heterogeneity values.